

WHAT IS CLAIMED IS:

1. A method for signal transmission between a television camera and a video apparatus which are connected to each other through a transmission cable, comprising the steps of:

 multiplexing a video signal and first control signals which are obtained from said television camera, by using a first time-division multiplexing circuit, to generate a first serial signal;

 transmitting said first serial signal by using a predetermined first signal line in said cable;

 transmitting a second control signal from said television camera to said video apparatus by using a predetermined second signal line in said cable;

 separating said first serial signal obtained from said first signal line into a video signal and said first control signal by a first de-multiplexing circuit of said video apparatus; and

 transmitting third control signals from said video apparatus to said television camera by using third and fourth signal lines in said cable.

2. The method according to claim 1, wherein said first control signals include control signals used in said video apparatus and said second control signal includes a clock signal for said television camera.

3. The method according to claim 2, wherein said first serial signal is obtained by converting an image signal for each pixel of said television camera and

said first control signals into serial data which has a divided-by-n (n: integer) period of that of said clock signal.

4. The method according to claim 2, wherein said first control signal includes an IP signal.

5. The method according to claim 2, wherein said third control signals include a trigger signal and a control signal for controlling said television camera.

6. The method according to claim 5, wherein said control signal for controlling said television camera includes an IP signal.

7. The method according to claim 1, wherein said third control signals obtained from said video apparatus are transmitted as de-multiplexed.

8. The method according to claim 1, wherein said third control signals from said video apparatus include trigger signals used in said television camera, said trigger signal transmitting step comprising the steps of:

multiplexing said trigger signals by using a second time-division multiplexing circuit to generate a single second serial signal;

transmitting said second serial signal by using said third signal line in said cable; and

separating said second serial signal obtained from said third signal line into said third control signals by using a second de-multiplexing circuit.

9. An apparatus for signal transmission between

a television camera and a video apparatus, comprising:

a first connection circuit which is connected to said television camera;

a second connection circuit which is connected to said video apparatus; and

a transmission cable for electrically connecting said first connection circuit and said second connection circuit to each other, wherein:

said first connection circuit has a first time-division multiplexing circuit for multiplexing an image signal obtained from said television camera and first control signals and converting them into a first serial signal;

said second connection circuit has a first de-multiplexing circuit for de-multiplexing said multiplexed first serial signal into said image signal and a first control signal; and

said transmission cable has a first signal line for transmitting said first serial signal and a second signal line for transmitting a second control signal from said television camera to said video apparatus.

10. The apparatus according to claim 9, wherein:

said second connection circuit has means for transmitting a third control signal which controls said television camera from said video apparatus;

said first connection circuit has means for receiving said third control signal; and

said transmission cable further has a third signal line for transmitting said third control signal.

11. The apparatus according to claim 10, wherein said transmission cable further has a line for supplying power from said video apparatus to said television camera.

12. The apparatus according to claim 9, wherein said multiplexing circuit converts an image signal for each pixel of said television camera and said first control signals into serial data which has a divided-by-n (n: integer) period of that of said clock signal.

13. The apparatus according to claim 9, wherein:
said second connection circuit has a second multiplexing circuit for time-division multiplexing trigger signals obtained from said video apparatus onto said third signal line; and

said first connection circuit has a second de-multiplexing circuit for de-multiplexing said multiplexed trigger signal obtained from said third signal line.

14. The apparatus according to claim 10, said third control signal includes a signal for controlling exposure time and/or exposure start time of said television camera.

15. The apparatus according to claim 10, wherein said third control signal includes a signal for controlling an image sampling period for images picked up by said television camera.